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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/986,114	11/07/2001	Akio Yamamoto	3673-0125P	4907
2292	7590	06/03/2005	EXAMINER	
BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747			SENF, BEHROOZ M	
			ART UNIT	PAPER NUMBER
			2613	

DATE MAILED: 06/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/986,114	Applicant(s) YAMAMOTO ET AL.	
	Examiner Behrooz Senfi	Art Unit 2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 March 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1 – 2, are rejected under 35 U.S.C. 103(a) as being unpatentable over Rankin (US 5,489,099) in view of Diepold (2002/0041339).

Regarding claim 1, Rankin '099 teaches the claimed "a ball motion measuring apparatus, comprising; Camera for photographing a flying ball to obtain original image data" (i.e. figs. 1 and 2, video camera 25), and "calculating the ball motion" (i.e. col. 4, lines 64 – col. 5, lines 29) and "a display section for displaying image" (i.e. fig. 2b. Rankin '099 teaches, "calculating the ball motion", but does not particularly teach, "magnifying process for calculating the motion of the object/ball". However, such features are well known and used in the prior art of the record as evidenced by Diepold '339 (i.e. page 2, sections 0015 and 0017) where teaches highlighting the moving object and using the motion vectors representing the motion of the object in the depicted scene, zooming. Therefore, taking the combined teaching of Rankin '099 and Diepold '339 as a whole, it would have been obvious to one skilled in the art at the time of the invention was made to enhance the video processor of Rankin '099 as taught by Diepold '339, and make the system capable of immediately detecting any object motion in a scene by calculating the motion of individual object(s) by highlighting/magnifying the

moving object. Furthermore, the use of CCD camera(s) for tracking an object is well known and used in the prior art of the record. Official notice

Regarding claim 2, Combination of Rankin '099 and Diepold '339 teach, "horizontal view angle of 10 degrees or more" (i.e. page 2, section 0015, lines 19 - 21, panning video camera of Diepold '339).

3. Claims 3, 4 – 8, are rejected under 35 U.S.C. 103(a) as being unpatentable over Rankin et al (US 5,489,099) in view of Yokota et al. (US 5,905,530).

Regarding claim 3, Rankin '099 teaches the claimed "a ball motion measuring apparatus, comprising; Camera for photographing a flying ball " (i.e. figs. 1 and 2, video camera 25). Rankin '099 also teaches correction of the camera motion, but does not particularly teach, "correcting a distortion made by camera lens (coordinate error correction)". However, such features are well known and used in the prior art as evidenced by Yokota '530 (i.e. figs. 1, 5 and 35, abstract, lines 10 – 12, cols. 1, lines 65 – col. 2, lines 29 and cols. 7 – 11) teaches process of correction of the image distortion caused by the camera lens and also distorted and undistorted image with respect to the object, to have undistorted (true) coordinates of the object image. Therefore, taking the combined teaching of Rankin '099 and Yokota '530 as a whole, since Yokota '530 reference is an improvement over the conventional image pickup apparatus and as stated with regards to deficiency of the conventional image pickup apparatus (i.e. col. 2, lines 1+), it would have been obvious to one skilled in the art at the time of the invention was made to overcome the prior deficiency by improve the image pickup apparatus for

correcting a distortion of an image necessarily occurring due to a photographing lens (distortion correction) with consideration of the moving object as taught by Yokota.

Regarding claim 4, combination of Rankin '099 and Yokota '530 teaches "correction ratio determined by a distance from the center of the original image," reads on (fig. 19, col. 9, lines 35+ of Yokota '530).

Regarding claims 5 and 7 - 8, combination of Rankin '099 and Yokota '530 teach, "horizontal view angle of 10 degrees or more" (col. 3, lines 35 – 45 of Yokota).

Regarding claim 6, the limitations claimed are substantially similar to claim 3, and "the shift of a direction of the object image from a direction of an optical axis of the camera" would be included in the process of the correcting the object image distortion, as discussed in claim 3, also Rankin '099 9 (i.e. fig. 5, steps 64 – 69) teaches the same. Therefore, the grounds for rejecting claim 3 also apply here.

4. Claims 9 – 10, are rejected under 35 U.S.C. 103(a) as being unpatentable over Rankin '099 in view of Diepold '339 as applied in claim 1, and further in view of Yokota '530 as applied in claim 3.

Regarding claims 9 - 10, combination of Rankin '099 and Diepold '339 teach, "a ball motion measuring apparatus, comprising; Camera for photographing a flying ball " (i.e. figs. 1 and 2, video camera 25), and "a display section for displaying " (i.e. fig. 2b), and "calculating the ball motion" (i.e. col. 4, lines 64 – col. 5, lines 29), and "magnifying process for calculating the motion" (i.e. page 2, sections 0015 and 0017 of Diepold). Combination of Rankin '099 and Diepold '339 teach, correction of the camera motion, but fails to teach more in details of "correcting a distortion made by camera lens

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(coordinate error correction)". However, such features are well known and used in the prior art as evidenced by Yokota '530 (i.e. figs. 1, 5 and 35, abstract, lines 10 – 12, cols. 1, lines 65 – col. 2, lines 29 and cols. 7 – 11) teaches process of correction of the image distortion caused by the camera lens and also distorted and undistorted image with respect to the object, to have undistorted (true) coordinates of the object image. Therefore, taking the combined teaching of Rankin '099 and Yokota '530 as a whole, since Yokota '530 reference is an improvement over the conventional image pickup apparatus and as stated with regards to deficiency of the conventional image pickup apparatus (i.e. col. 2, lines 1+), it would have been obvious to one skilled in the art at the time of the invention was made to overcome the prior deficiency by improve the image pickup apparatus for correcting a distortion of an image necessarily occurring due to a photographing lens (distortion correction) with consideration of the moving object as taught by Yokota.

Response to Remarks:

Applicant asserts (remarks filed 3/21/2005, page 4, lines 16 – 19, page 5, lines 9 - 10) that Yokota reference fails to disclose or suggest, a) "correct a coordinate error to calculate correction data" and b) "and use the correction data to calculate ball motion as recited in independent claims 3 and 6 of the present invention".

Examiner respectfully disagrees: Yokota (i.e. figs. 1, 5 and 35, abstract, lines 10 – 12, cols. 1, lines 65 – col. 2, lines 29 and cols. 7 – 11) teaches process of correction of the error/image distortion caused by the camera lens (distortion correction, as defined in the specification of the present application for correcting coordinate error) and also

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distorted and undistorted image with respect to the object, to have undistorted (true) coordinates of the object image.

As for b), Claims 3 and 6 does not recite the limitation "use the correction data to calculate ball motion" as raised by applicant.

Applicant asserts (remarks filed 3/21/2005, page 6, lines 11 – 13) that examiner has not established a prima facie case of obviousness.

Examiner respectfully disagrees. Yokota reference as stated in (col. 1, lines 65 – col. 2, lines 30) is an improvement over the conventional image pickup apparatus (for example, Rankin) and overcome the prior deficiency of the conventional image pickup apparatus with consideration of the moving object in the process of distortion correction. Therefore prima facie has been established.

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Behrooz Senfi** whose telephone number is **(571)272-7339**.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Chris Kelley** can be reached on **(571)272-7331**.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

Or faxed to:

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(703) 872-9314

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relative to the status of the application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

B. M. S.

5/20/2005


CHRIS KELLEY
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600